

(1) the Sierra Nevada, the chief sylvan interest of which belongs to the long western slope, where occur the Big Tree groves, the eastern slope being remarkably abrupt; (2) the North Coast Ranges, a region rich in individuals and species, including the Redwood and many others which extend northwards into Oregon and Washington; (3) the South Coast Ranges, which form an interesting area richest forestally on the seaward slopes, where, among others, flourish the Redwood, Douglas Fir, and *Pinus ponderosa*. This region includes the remarkable peninsula of Monterey, where the well-known Monterey cypress of our gardens (*Cupressus macrocarpa*) is endemic; (4) Southern California, where the rainfall is deficient and the arboreal growth confined to mountain valleys and canons, and where, in many places, the vegetation is of a purely desert character.

Spread over these five forest provinces are the ninety-four species of trees which come under the author's purview. The whole essay, which is one of remarkable interest, is the result, as Mr. Jepson tells us, of nineteen years' travel and study in the field. The only criticism we would make is that the exclusive use of vernacular names renders it impossible to follow the author without a continual and rather irritating reference to the body of the work in order to ascertain what species it is to which he is alluding. Such names as "Interior Live oak," "Santa Lucia fir," convey no meaning to the majority of readers, and their general adoption (which the author is anxious to bring about), as well as the reader's convenience, would have been furthered by a citation of the botanical name as well.

The treatment of the individual species is admirable. A very full synonymy is given, and a copious list of references. After an adequate and not very technical description of the tree, the author discusses its geographical distribution, its history, economic value, and any other matter of interest concerning it. To the Redwood and Big Tree, ten and eight pages respectively are devoted, and the distribution of the latter is shown by two large maps. The book is illustrated by eighty-five full-page plates, many of them reproductions of photographs showing the trees in their native habitats, and, incidentally, characteristic bits of Californian scenery.

Mr. Jepson has the orthodox conception of a species, which is decidedly refreshing after the orgy of species-making his compatriots of recent times have indulged in. As presenting an original and authoritative account of a group of trees of particular interest to arboriculturists in the British Isles, his book may be strongly recommended.

W. J. BEAN.

IMPERIAL SURVEYING.¹

IN response to an invitation sent by the Colonial Office in March, 1909, to the Dominion, Commonwealth, State, and Provincial Governments in the Empire, delegates for the Commonwealth of Australia and the Dominion of Canada met in London in June last to discuss the proposal for establishing some system of reciprocal admission for surveyors between the different portions of the Empire. The question had been raised originally as a resolution submitted by the Government of New Zealand to the Colonial Conference of 1907, at which a memorandum drawn up by the council of the Surveyors' Institution was discussed, and a resolution was adopted affirming the desirability of reciprocity with regard to the examination and authorisation of land surveyors. The outcome of this was that particulars of examinations and other requirements with regard to the authorisation

of surveyors were obtained from several Dominions, and were coordinated and compared in a second memorandum by the council of the Surveyors' Institution, in which the desirability of a conference between those concerned was pointed out.

This conference recommends as a first essential the formation of a central board, which would use its influence to keep up a uniform standard of examination, and on which the different Governments of the Empire would be represented. All examination papers set in any part of the Empire under any scheme of reciprocity would be sent to the board, which would direct attention to any questions falling below the standard agreed upon, and would consider any proposals for improving the working arrangements for reciprocity. Further, a syllabus was drawn up for a preliminary examination in English, arithmetic, algebra, plane and solid geometry, plane trigonometry, and mensuration; and for another of more advanced type to be passed after two years' field service, and including practical and theoretical surveying up to secondary triangulation.

Though this may appear a slight basis on which to construct a scheme of imperial reciprocity in this direction, the complexity of the whole subject must be remembered. In the United Kingdom the Ordnance Survey has provided an accurate topographical survey of every portion, though a true cadastral survey indicating all property boundaries does not yet exist, and, according to the recent report of the Royal Commission on the Land Transfer Acts, is not recommended, since therein verbal description of boundaries is preferred, maps being used in all cases, but only for assisting identity. Consequently there is no profession of highly trained surveyors having an intimate knowledge and full experience of the most precise methods of land and earth measurement, nor is geodesy studied at the higher educational institutions as is the case on the Continent. A moderate knowledge of land measurement enables the necessary interpolations and additions to be made to an ordnance map, and a land surveyor's duties are very largely concerned with valuation. The Surveyors' Institution has arranged a special advanced examination in land surveying, but being of no great value at home, and not recognised in a colony, use is not made of it.

In the various colonies the conditions are wholly different, for large areas remain unsurveyed, the demand for the location of property boundaries is urgent, and in many cases the surveyor has no official control points to connect with, but must make his own survey self-contained. It is therefore necessary for the Governments of these colonies to insist upon a high standard of technical efficiency in land measurement, including an acquaintance with geodetic work in all its branches. With such very different conditions existing any arrangement for the free interchange of surveyors must be difficult, and the proposals now put forward may be a first step as providing a guarantee of a certain standard of efficiency which may in some Dominions, Provinces, or States require to be supplemented to qualify for their special certificates.

In the United Kingdom at the present time there is no place where higher surveying and geodesy are regularly taught to those who are already acquainted with the ordinary and more approximate methods, and an improvement in this respect would do much to enable a surveyor in this country, wishing to practise in the colonies, to acquire the additional technical equipment which is required by some of their regulations. But besides the self-governing colonies there are vast tracts administered by the Crown colonies, and in these administration and development are de-

¹ Report of a Conference on the Question of Reciprocity throughout the Empire in the Examination and Authorisation of Surveyors. [Cd. 5776.] (London: Stationery Office, 1911.) Price 2½d.

manding both topographical and cadastral surveys as rapidly as they can be prepared. If these are to be both efficient and economical, and if as little as possible of the work done in early stages is to need complete revision at a later date, then those engaged in directing them should have a thorough knowledge of the methods, principles, and requirements of surveying of the highest grade, and not merely a certain proficiency in the simpler classes of topography that is now demanded; but for the acquirement of such knowledge there are not as yet in this country facilities such as exist on the Continent, where numerous chairs of geodesy and precise surveying are to be found.

H. G. L.

FRANCE AND CLASSICAL EDUCATION.

AT the Dijon meeting of the French Association for the Advancement of Science last August the president, M. Ch. Lallemand, delivered an informing and luminous address on the question of modern *versus* classical education. The address should be particularly instructive to English educationists, for the home of the traditional curriculum of our public schools is France, the direct heir of Roman literary culture.

Recently there has been something of a crusade against "modernism" in education, the chief argument being that the French language and French culture are being endangered by the abandonment of what the French call "Latin education," which, like our classical education, is chiefly based on Latin and Greek. But, as will be seen, there is no abandonment, and the crusade is probably no more significant than its predecessor of forty years ago, or the longer-continued counter-crusade against "Latin education." We shall refer to it more fully below.

Science and modern languages were introduced as parallel lines of education, but not as superseding the classical system, under the Second Empire. The growing needs of industry and commerce and the enormous development of science forced this on the nation. This "bifurcation" was continuously successful, though it was at once attacked. A counter-attack on the classical course followed, increasing in vigour towards the end of the century. M. Jules Lemaitre put the weight of his great authority into the scale against classics. A similar attack was meanwhile being made in Germany, the Emperor William pronouncing strongly against classical education. From 1882 to 1900 the proportion of German students not learning Latin increased from 9 per cent. to 43. Then in 1902, as the result of a parliamentary commission, came further concessions to the claims of modernism. The resulting system, known as the "quadrifurcation," comprises, besides the general classical course, Latin and modern languages, Latin and science, and the specially "modern" course of modern languages and science.

The system is attacked both by literary and, significantly, by commercial authorities. M. Marcel Prévost says: "The new crop of graduates does not know more algebra, or physics, or modern languages than the old, and of their own language they know less." The chambers of commerce and great financial administrations have complained of the decay of correct writing and spelling, and demand the restoration of Greek and Latin as being indispensable for proficiency in commercial composition. Societies have recently been formed for the protection of French culture and the French tongue.

M. Lallemand disproves the notion that there is *une crise du français*. Recently in China the man-

darins complained that young students were neglecting the study of the "characters" under the baneful influence of occidental ideas. When the classical system in France was "uncontaminated" by modernism, the complaint was made that the engineers of the public departments could not write or spell, and a special course was instituted to make this defect good.

Further, statistics show conclusively that if this ignorance of the principles of composition and orthography exists, it is not due to the abandonment of Latin and Greek. As a matter of fact, the number of students taking Latin has steadily increased since 1902. In 1910, of 1875 first-year students in Paris, only 362 had not learnt Latin. Of 646 students leaving L'Ecole Polytechnique between 1906 and 1910, there are 203 "moderns" as against 443 "Latins." Finally, as to the writing question, the Polytechnique examinations in French composition during the last ten years show a considerable superiority on the part of the "moderns"!

As to the alleged decadence of correct writing and calligraphy, M. Lallemand suggests that the increasing congestion of curricula, necessary in view of increasing knowledge, may be a factor. Perhaps in France, as in England, no serious attempt has ever been made to teach the native language. The present writer holds that this defect, together with the retention of Latin and Greek, constitutes the crying evil of present-day education.

M. Lallemand has some good remarks and quotations on the alleged educative virtue of dead languages and on the inconsistent arguments of those who advance it. They might form the basis of a logical inquiry, which is much needed, into the "educative" processes. He also has some penetrating observations on caste-feeling, which has a good deal to do with the recent crusade. The smallest shopkeeper is in favour of Latin, because his son can learn it as well as the son of the noble. If science were the cornerstone of education, the smallest shopkeeper would, on the same principle, vote for science.

A. E. CRAWLEY.

SIR HERBERT RISLEY, K.C.I.E.

BY the untimely death of Sir Herbert Hope Risley on September 30, at the age of sixty, science has lost an eminent anthropologist and India an official of no ordinary ability. Born in 1851, educated at Winchester and New College, Oxford, he joined the Indian Civil Service in 1873, and was posted to Bengal. He was soon transferred to the secretariat, a class of work for which his qualifications were better suited than that of an executive officer. But already he had acquired a taste for ethnological research during a short period of service in Chota Nagpur, where, on the basis of Colonel E. T. Dalton's "Descriptive Ethnology of Bengal," he compiled an account of the interesting hill races, which appeared in vol. xvi. of Sir W. Hunter's "Statistical Survey" of the province, issued in 1875-7. This, with the period spent on special duty as ethnographical superintendent in Bengal, was the only opportunity he enjoyed of obtaining that intimate familiarity with the rural classes which can be gained only by life-long service in their midst.

The results of his researches in Bengal were embodied in his work on the tribes and castes of that province which appeared in 1891. Aided by a band of skilled co-workers, and utilising the materials privately published by Dr. J. Wise in 1883 under the title of "Notes on the Races, Castes, and Trades of